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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/021,976 | 11/30/2001 | Kun Wang | JCW-0103 | 2006 |

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EXAMINER

DANG, THUAN D

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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1764

DATE MAILED: 02/13/2003

5

Please find below and/or attached an Office communication concerning this application or proceeding.

AS-5

Office Action Summary

Application No.

10/021,976

Applicant(s)

WANG ET AL.

Examiner

Thuan D. Dang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 09 April 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☒ Interview Summary (PTO-413) Paper No(s). 4
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-16 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. As disclosed by applicants on page 3, lines 17-21, Riccardo discloses a process of polymerization of styrene (an olefinic monomer) in the presence of a catalyst containing substantially the same as the applicants' claimed process. Applicants discloses that Riccardo fails to polymerize styrene when this catalyst system is used (see table I of Riccardo). One having ordinary skill in the art would expect that the applicants' claimed process which is operated in the presence of substantially the same catalyst would yield no polymer (see the below 112, 2nd rejection). As disclosed in the specification, applicants are successful. Therefore, what makes the applicants' success, while Riccardo fails. These critical features cannot be found in the specification. Therefore, one having ordinary skill in the art would be required to perform undue experimentation to identify how to polymerize monomers in the claimed process. Therefore, enablement is not provided.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1 and 16, it is unclear if the olefinic monomer would be reacted to produce polymer during the contacting step.

Regarding claim 3, "and **derivatives** thereof" (emphasis added) is indefinite since it is unclear which derivatives of selected nickel compounds are.

Regarding claim 4, "alkylating agents" is indefinite since the applicants' claimed are a polymerization process not alkylating process. Therefore, it is unclear which compounds are considered to be "alkylating agents".

Regarding claim 15, "and **derivatives** thereof" (emphasis added) is indefinite since it is unclear which derivatives of selected sulfur compounds are.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Riccardo et al ("Polymerization of Styrene with Nickel Complex/Methylaluminoxane Catalytic Systems").

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Riccardo discloses a contacting step of styrene (olefinic monomer) with a catalyst substantially the same as the applicants' claimed in the presence of solvent (the abstract; table 1; page 3, lines 17-21 of the specification of this application; also review the 112, 2nd paragraph).

Therefore, Riccardo anticipates the claimed process.

Claims 1-4, 9, and 10 rejected under 35 U.S.C. 102(b) as being anticipated by The English abstract of Japanese patent 70007522B.

The abstract discloses a step of contacting ethylene in the presence of a catalyst substantially the same as the applicants' claimed process (also see page 3, lines 7-15 of the specification of this application).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Riccardo et al ("Polymerization of Styrene with Nickel Complex/Methylaluminoxane Catalytic Systems").

Riccardo discloses a process as discussed above.

Riccardo appears to silent as to the pressure of the contacting step and the phase of the contacting step. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Riccardo process by selecting an appropriate pressure to optimize the contacting step under gas phase since it is expected that under any pressure in any phase, the Riccardo process yields similar results.

Claims 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over the English abstract of Japanese patent 70007522B.

The abstract does not disclose the condition of the contacting step. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Japanese process by selecting an appropriate temperature and pressure such as

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the applicants' claimed ones under the gas phase since it is expected that under any condition, the Japanese process yields similar results.

Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over the English abstract of Japanese patent 70007522B in considered with Masters et al (4,533,651).

The abstract discloses a process as discussed above.

The abstract appears to be silent as to a support for the catalyst. However, Masters discloses that silica can be used as a support for the oligomerization nickel catalyst (the abstract; col. 3, lines 53-68).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Japanese process by using the silica as support to enhance the performance of the Japanese catalyst since Masters discloses that silica support also functions as a cocatalyst (col.. 3, lines 53-68).

Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over the English abstract of Japanese patent 70007522B in considered with Wang et al (6,120,692).

The abstract discloses a process as discussed above. The abstract does not disclose using an olefin containing impurities, namely sulfur compounds. However, Wang discloses that industrial olefins contains sulfur contaminants (the abstract).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Japanese process by using these olefin feeds since it is expected that any olefin feed can be used to contact with the Japanese catalyst.

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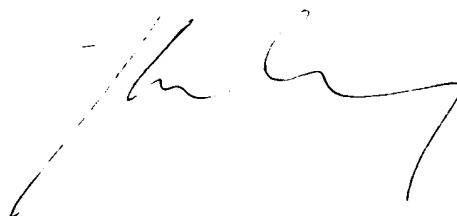
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thuan D. Dang whose telephone number is 703-305-2658. The examiner can normally be reached on Mon-Thu.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 703-308-6824. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-5408 for regular communications and 703-305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Thuan D. Dang
Primary Examiner
Art Unit 1764

10021976.1st
February 10, 2003

A handwritten signature in black ink, appearing to read 'Thuan D. Dang', is written over a dashed horizontal line.